AMENDMENTS TO THE CLAIMS

For the Examiner's convenience, all pending claims are set forth below and have been amended where noted:

1) (Currently amended) A ~~particle~~ particulate stripping unit with a self-stripping disengagement feature for separating particulates from ~~particles in suspension with~~ a carrier fluid ~~with a self-stripping disengagement feature~~, comprising:

a ~~stripping~~ vessel having a ~~primary~~ cyclone section and a stripping section, the stripping section having a cross sectional area less than a cross-sectional area of the cyclone section;

an inlet to tangentially feed a particulate-fluid suspension to the ~~primary~~ cyclone section;

a cylindrical surface within the ~~primary~~ cyclone section to separate a major fraction of the particulates from the suspension and form a vortex of reduced particulate content;

a particulate discharge outlet ~~into the stripping vessel~~ from the ~~primary~~ cyclone section to the stripping section;

a plurality of ~~openings~~ apertures disposed through a lower portion of the stripping section ~~in a wall of the primary cyclone for entry of stripping fluid into the primary cyclone from a dilute phase in the stripping vessel~~; and

a ~~fluid~~ discharge line from the cyclone section ~~stripping vessel~~ in communication with the vortex ~~of the primary cyclone and sealed against direct fluid entry from the dilute phase~~.

2) (Canceled)

3) (Canceled)

4) (Currently amended) The particle stripping unit of claim 1, further comprising a thermal expansion joint disposed on ~~in~~ the ~~fluid~~ discharge line from the cyclone section.

5) (Currently amended) The particle stripping unit of ~~claim 2~~ claim 1, further comprising a stabilizer disposed between the vortex and the stripping section, the stabilizer comprising one or more ~~zone forming an~~ annular ~~passage~~ passages disposed therethrough ~~between~~

~~the stabilizer and an interior surface of the cyclone for downward passage of particulates and upward passage of fluid~~.

6) (Currently amended) The particle stripping unit of claim 1, wherein the inlet is connected to a ~~fluid~~ fluidized catalytic cracking (FCC) riser ~~to receive a suspension of solid catalyst particles in the vapor~~.

7) (Canceled)

8) (Canceled)

9) (Canceled)

10) (Canceled)

11) (Canceled)

12) (Canceled)

13) (Canceled)

14) (Canceled)

15) (Canceled)

16) (Canceled)

17) (Canceled)

18) (Canceled)

19) (Canceled)

20) (Canceled)

21) (Currently amended) A method for stripping vapor from a suspension of particulates in a carrier gas, comprising:

separating particulates from the suspension in ~~an initial~~ a separation zone ~~of a cyclone~~ having a first cross-sectional area to form a particulate-rich stream with entrained vapor and a vapor stream lean in suspended matter;

introducing a stripping fluid through a plurality of ~~openings~~ apertures formed through a lower ~~in an~~ exterior wall of a stripping zone disposed below the ~~initial~~ separation zone, the stripping zone having a second cross-sectional area less than the first cross-sectional area of the separation zone;

passing the particulate-rich stream from the separation zone through the stripping zone, making countercurrent contact with the stripping fluid to remove at least a portion of the entrained vapor, and into a dipleg in communication with the stripping zone; and

recovering stripped particulates from the dipleg.

22) (Currently amended) The method of claim 21 wherein the stripping zone is in fluid communication with the ~~initial~~ separation zone via an annular passage defined by an outside diameter of a ~~vortex~~ stabilizer and an interior wall of the ~~cyclone between the separation and~~ stripping ~~zones~~ zone.

23) (Currently amended) A method ~~of~~ for retrofitting an existing cyclone to a self-stripping cyclone, wherein the existing cyclone is housed within a pressurized vessel to receive a vapor-solid suspension and separate the suspension into a solids-rich stream and a solids-lean stream, the existing cyclone has a sealed lower discharge to pass the particulates into the pressurized vessel, and the existing cyclone is connected to a plenum in communication with an exterior of the pressurized vessel to recover the solids-lean stream, the method comprising:

installing a new ~~cyclone bottom~~ section beneath ~~to an upper portion of~~ the existing cyclone to provide a stripping zone in communication with the existing cyclone ~~upper portion~~, wherein the new section has a cross-sectional area less than a cross-sectional area of the existing cyclone ~~bottom includes a dipleg to receive the solids rich stream from the stripping zone~~ and a plurality of ~~openings~~ apertures formed therethrough ~~in the wall of the cyclone bottom~~ to introduce a stripping fluid into the stripping zone ~~by differential pressure~~; and

replacing the unsealed joint with a sealed joint, if the plenum of the existing cyclone comprises an unsealed joint.

24) (Currently amended) The method of claim 23, wherein the new ~~cyclone bottom~~ section comprises a vortex stabilizer wherein the vortex stabilizer and an interior wall of the cyclone ~~bottom that defines~~ define an annular passage ~~there between~~ therebetween.

25) (New) An apparatus for separating particulates from a carrier fluid, comprising:

an upper section with a first cross-sectional area;

a lower section with a second cross-sectional area;

a conical member disposed within the lower section and mounted coaxially along a longitudinal centerline of the lower section thereby forming one or more passages therebetween;

a tangential inlet adapted to feed a particulate-fluid suspension to the upper section wherein at least a portion of the upper section has a cylindrical surface to separate a major fraction of the particulates from the suspension and form a vortex of reduced particulate content; and

the lower section comprising a lower surface having a plurality of apertures formed therethrough.

26) (New) The apparatus of claim 25 wherein the first cross-sectional area is greater than the second cross sectional area.

27) (New) The apparatus of claim 25 wherein a tapered transition section is disposed between the upper section and the lower section.

28) (New) The apparatus of claim 25 wherein the conical member comprises an apex disposed toward the upper section and a base defining one or more passages with an inner wall of the lower section.

29) (New) A method for stripping particulates from a particulate-fluid suspension comprising:

introducing a particulate-fluid suspension to a vessel comprising:

an upper section with a first cross-sectional area;

a lower section with a second cross-sectional area;

a conical member dispersed within the lower section and mounted coaxially along a longitudinal centerline of the lower section thereby forming one or more passages therebetween;

a tangential inlet to feed a particulate-fluid suspension to the upper section wherein at least a portion of the upper section has a cylindrical surface to separate a major fraction of the particulates from the suspension and form a vortex of reduced particulate content; and

the lower section comprising a lower surface having a plurality of apertures formed therethrough;

separating particulates from the particulate-fluid suspension using the cylindrical surface within the upper section thereby forming a vortex of reduced particulate content;

settling the separated particulates into the lower section; and

introducing a fluid through the plurality of apertures in the lower surface of the lower section.

30) (New) The method of claim 29, wherein a solids flux rate in the lower section is about 24 kilograms per square meter to about 440 kilograms per square meter of stripping section cross-sectional area per second.

31) (New) The method of claim 29, wherein a superficial velocity of the fluid passing through the lower section is about 0.1 to about 5.0 meters per second.

32) (New) The method of claim 29, wherein a velocity of the stripping fluid through the plurality of openings is about 9 to about 90 meters per second.

33) (New) The method of claim 29, wherein the particulate-fluid suspension is a fluidized catalytic cracker riser stream containing hydrocarbon gas and particulates.

Applicant believes that no new matter has been added with these amendments.